

FACT FILE: Average Faculty Salaries by Rank in Selected Fields, 1990-91

	282 Public Institutions						494 Private Institutions					
	Professor	Associate professor	Assistant professor*	New assistant professor	Instructor	All ranks	Professor	Associate professor	Assistant professor*	New assistant professor	Instructor	All ranks
Accounting	\$58,680	\$49,198	\$42,635	\$42,799	\$28,343	\$47,341	\$57,303	\$46,298	\$39,025	\$40,491	\$30,475	\$43,997
Agribusiness and agricultural production	44,028	37,772	33,611	29,495	36,650	38,947	41,203	30,706	29,188	—	—	32,760
Allied health	49,757	38,643	32,093	32,047	26,896	36,343	50,447	41,594	32,286	31,801	22,629	35,243
Anthropology	50,005	38,965	31,694	29,123	—	42,628	51,213	39,168	31,766	29,702	—	40,660
Architecture and environmental design	49,831	41,540	34,341	31,834	30,115	41,454	54,329	42,484	35,930	—	—	43,883
Area and ethnic studies	51,499	42,692	34,397	—	29,727	42,595	53,130	42,202	—	—	—	—
Audiology and speech pathology	50,454	39,505	32,008	31,128	26,338	39,766	50,560	39,112	30,264	—	—	38,386
Business administration and management	55,347	46,298	40,550	43,373	27,919	45,297	62,268	44,923	38,406	39,725	29,326	45,409
Business and management	56,309	46,963	41,873	43,896	28,429	46,364	59,787	48,627	42,361	40,545	29,702	47,947
Business economics	52,482	44,543	39,131	38,518	27,157	44,740	51,117	42,306	37,013	37,743	30,160	42,169
Chemistry	50,301	39,355	32,171	30,720	25,131	43,116	50,342	37,226	30,995	29,312	24,701	41,957
Communications	48,407	38,976	31,627	30,393	25,833	36,863	46,734	38,412	30,258	29,161	24,974	35,466
Communications technologies	50,252	38,842	32,002	—	26,129	38,892	50,217	37,901	32,520	32,259	23,356	36,046
Computer and information science	55,229	46,270	40,456	41,417	29,091	44,043	56,047	43,283	35,772	35,120	28,197	41,290
Curriculum and instruction	47,508	38,776	31,333	29,792	24,434	38,387	53,862	41,165	32,253	—	—	44,440
Dramatic arts	48,519	37,332	30,425	29,643	25,905	37,980	46,441	35,611	29,131	27,512	26,215	35,031
Drawing	47,143	37,409	30,631	29,496	24,626	38,851	43,879	34,281	28,630	26,882	24,408	34,741
Economics	53,447	42,574	36,452	37,174	29,901	44,654	64,690	41,734	36,542	32,609	29,901	47,077
Education	48,349	39,781	32,515	32,602	25,833	39,620	47,162	36,755	30,085	30,100	24,895	37,308
Engineering	57,756	47,171	40,799	41,365	31,856	49,087	66,465	50,424	43,867	40,737	30,294	55,260
Engineering technologies	48,228	40,784	33,896	33,582	27,427	38,856	46,129	39,950	34,062	—	29,277	37,925
Foreign languages	49,163	38,415	30,964	29,134	24,046	37,649	46,925	37,456	30,511	28,582	24,084	36,387
Geography	50,249	39,688	32,243	31,114	28,201	41,944	50,840	37,813	31,574	—	—	40,848
Geology	49,173	39,065	31,954	31,264	27,978	42,411	57,157	43,264	32,777	—	—	49,052
Higher education administration	50,045	40,553	33,060	—	—	43,197	47,620	41,325	33,153	—	—	41,490
History	49,033	38,862	30,108	27,764	25,126	42,236	47,208	37,044	29,564	27,531	24,756	39,220
Home economics	48,723	38,795	32,573	32,157	24,297	36,551	41,123	35,020	30,508	30,176	25,698	33,029
Hotel/motel management	52,028	43,521	—	—	—	44,772	—	40,974	33,676	—	26,317	36,398
Letters	47,697	38,268	30,246	28,296	22,746	36,868	46,401	36,087	29,210	27,882	25,179	36,620
Library and archival sciences	49,104	39,037	32,282	28,060	26,205	36,971	45,695	36,230	29,550	26,862	24,622	33,736
Life sciences	49,247	39,918	32,287	30,553	24,321	42,299	46,594	36,651	30,169	28,968	22,908	39,059
Marketing management	56,608	47,961	43,864	45,425	28,393	47,866	60,110	49,270	42,194	43,514	32,700	47,277
Mathematics	50,379	40,386	33,327	33,029	24,776	39,657	51,622	38,802	31,949	31,299	24,646	39,523
Multi-interdisciplinary studies	49,826	40,848	33,095	—	29,124	41,626	41,824	37,693	30,292	—	29,279	37,551
Music	47,296	37,416	30,364	29,269	26,632	38,041	42,569	34,045	28,707	27,929	24,221	34,418
Nursing	49,137	39,425	32,380	31,044	27,391	34,801	43,461	35,176	29,740	29,553	25,367	31,637
Occupational therapy	49,484	38,807	33,513	—	27,175	35,702	—	39,023	33,568	—	27,661	34,624
Philosophy and religion	49,922	39,169	31,007	28,740	26,679	41,607	45,808	36,407	30,159	28,866	24,396	38,496
Physical education	48,190	39,808	33,017	30,538	27,419	37,479	43,042	36,111	28,989	26,996	24,339	33,106
Physical science	48,108	38,822	32,324	34,813	23,615	40,913	54,318	41,428	33,064	31,042	23,382	44,863
Physical therapy	48,466	40,584	35,270	35,078	27,507	37,280	—	44,675	35,928	—	26,808	36,557
Physics	51,117	40,408	34,042	32,586	27,452	44,046	55,801	41,083	36,168	33,894	29,734	46,788
Political science	50,105	39,122	31,145	29,835	26,561	41,428	50,466	38,640	31,203	29,584	26,735	40,707
Protective services	47,688	38,927	31,249	29,730	26,227	37,397	53,755	37,472	30,686	—	—	40,108
Psychology	49,892	39,597	31,863	30,607	26,904	41,963	47,857	36,959	30,331	29,244	24,881	38,648
Reading education	47,629	38,097	31,953	—	24,921	38,568	47,991	33,656	28,467	—	—	—
Secretarial and related programs	47,306	38,517	32,653	36,088	24,408	37,485	—	30,920	23,739	—	25,037	27,835
Social sciences	46,296	37,300	30,506	30,487	24,376	37,515	51,564	36,148	31,525	30,703	25,364	39,544
Sociology	49,428	39,175	31,543	29,799	25,773	40,951	47,125	36,807	30,018	28,229	23,566	37,517
Special education	49,300	39,348	32,392	30,070	26,287	40,451	48,042	35,624	28,967	28,264	21,656	35,602
Student counseling and personnel services	48,864	38,326	31,638	29,687	28,432	40,549	48,971	40,827	31,050	—	—	40,212
Teacher education, general programs	48,754	38,788	32,062	31,035	26,005	39,379	39,284	33,850	28,370	28,091	22,902	32,648
Theology	—	—	—	—	—	—	41,631	34,870	29,494	27,516	26,177	36,031
Visual and performing arts	48,326	36,935	30,097	29,443	25,296	37,144	46,347	36,396	29,640	28,189	24,896	36,018
All major fields	\$50,041	\$40,501	\$33,582	\$32,576	\$26,052	\$40,607	\$50,187	\$39,005	\$32,426	\$31,037	\$25,804	\$39,883

Note. Data are based on reports from 282 public institutions that are members of the American Association of State Colleges and Universities and from 494 private colleges and universities.

* Includes data for new assistant professors.

— Indicates fewer than 10 positions in a rank or fewer than 50 of all ranks. The data are included in the averages for all ranks and for all fields.

SOURCE: COLLEGE AND UNIVERSITY PERSONNEL ASSOCIATION

Engineers Are Atop Faculty-Pay Scale for 8th Year in Row

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nized," he said. "They're almost like a collective-bargaining unit."

Mr. Howe also said the data indicated that professors in business and management fields would move up the pay scale. Many new assistant professors in accounting and marketing, he noted, earn higher starting salaries than their counterparts in engineering.

New assistant professors in marketing management earned an average of \$45,425 at public institutions, while their counterparts in engineering earned an average of \$41,365. The survey of faculty members at private institutions showed similar findings for new assistant professors in both fields. Mr. Howe said those findings suggested not only a change in which disciplines would attract top dollar in the future, but also that salary compression was a continuing problem. That is, assistant profes-

Nursing professors may climb the pay scale in the future. "They're so well organized. They're almost like a collective-bargaining unit."

sors in those fields who had been at their institutions longer earned less on average than newcomers.

For professors of all ranks and disciplines, salaries at the start of the current academic year averaged \$39,683 at private colleges and \$40,607 at public colleges.

Mr. Howe said the average faculty salaries at private colleges had remained lower than those at public institutions because the latter were more likely to have collective-bargaining units. Professors represented by such units earn higher salaries on average—13 per cent higher this year—than professors at non-unionized institutions.

Public-Private Switch

Increases in faculty salaries at private colleges, however, outpaced those at public institutions this year—a switch from the previous two years. Professors at private institutions earned an average of nearly 8 per cent more than last year, while those at public colleges earned about 4 per cent more. Mr. Howe blamed the poor economies of many states for the lower raises at public institutions. He said he did not expect raises to improve anytime soon. "My crystal ball tells me that the raise for publics will be even less next year."

An earlier study by the American Association of University Professors, which looked at faculty salaries at 2,215 colleges and universities by academic rank, gender, and type of institution, drew similar conclusions (*The Chronicle*, April 3). That survey found that the average salary for professors at all types of institutions during the 1990-91 academic year is

\$43,720—5.4 per cent higher than last year.

The CUPA survey did not include professional-school faculty members or administrators with faculty rank. The data represent earnings for full-time professors over 9 or 10 months, excluding fringe benefits.

CUPA conducted separate surveys of public and private institutions. Copies of the surveys are available to participating institutions for \$20 each, to CUPA members for \$30 each, and to all others for \$60 each from the College and University Personnel Association, 1233 20th Street, N.W., Suite 503, Washington 20036; (202) 429-0311. Colleges may also purchase specially tailored studies comparing their average faculty salaries with those of similar institutions. ■

Questions About Renovations Lead to Protest at James Madison

HARRISONBURG, VA.

A group of James Madison University students ended their academic year with four days of protests, demanding that President Ronald E. Carrier address questions about renovations on the presidential mansion.

The protesters—including student-government leaders—have in the past year raised questions about the renovations, which took place four years ago. Many of the questions were prompted by a student's attempts to gain information about university spending.

Fred D. Hilton, a spokesman for James Madison, said about \$400,000 in state and private money had

been spent in two stages from 1985 to 1987 to renovate the mansion, called Oakview. He said the work done on the house, a private home acquired in the 1970's, had made it more suitable for entertaining.

The state auditor, the state education secretary, and state police officials all have said that allegations of improper expenditures on Oakview were fully investigated in the past, and discounted. Most officials said they considered the case closed. Some suggested the critics were waging a personal vendetta against the president.

Some students and other campus observers, however, have speculated that further work was done at

Oakview, and that the earlier renovation cost more than the university has stated. Elizabeth Ising, a student-government officer, said she was concerned about what she saw as a lack of communication between the administration and students on spending for Oakview—particularly during tough financial times. "Everyone's talking about the budget crisis, and then we hear about \$200,000 being spent on the president's house and solid-gold bathroom fixtures," she said.

Mr. Hilton, who said the widely talked-about fixtures did not exist, said President Carrier planned to meet with students in the fall.

—COURTNEY LEATHERMAN



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Many Academics Are Backing Efforts to Cut Down on 'Trivial' Scholarship

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list, say, only three pieces of work on the bibliographies they submit to evaluation committees, they won't feel they are under as much pressure to crank out papers. The length of the bibliography might vary, based on a scholar's discipline or rank.

So eager are some scholars to build up their résumés that Ms. Boots regularly receives papers for submission that have been submitted elsewhere under different titles or with minor changes. (Once, while editor of another journal, she unknowingly published such a paper.) Some scholars also practice what Ms. Boots and others call "salami science": They slice up their research results into "least publishable units" so they can get several papers out of work that rightfully merits only one.

Concern Directed at Sciences

Much of the concern about excess publishing is directed at the sciences, where scholars tend to publish research results rapidly, in articles rather than in books. While critics in the scientific community acknowledge that the escalation of publication is partly due to a "knowledge explosion," they speculate that pressure to win grant money and commercialize research accounts for too much of it. Increasingly, scientific-journal editors are pushing for stricter policies governing multiple authorship, duplicative research, and other issues associated with overpublishing.

But critics in all disciplines worry that the emphasis on quantity overburdens peer reviewers, takes professors away from their students, discourages them from doing risky research, leads to a proliferation of narrowly specialized journals, and may even motivate

scholars to publish fraudulent research results.

"The economic cost is also scandalously high," says Page Smith, former provost at the University of California at Santa Cruz, in his 1990 book *Killing the Spirit: Higher Education in America*. A major contention of his book is "that the routine and pedestrian far outweigh the brilliant and original; that routine and pedestrian research is not merely a very expensive nullity but a moral and spiritual drag on the institutions in which it takes place. . . ."

Research by Small Proportion

Each year scholars publish hundreds of thousands of articles, books, and monographs, on topics ranging from the aging process of Indian women in South Africa to efforts to map human chromosomes to the effects of professional baseball on marriage, to name just three subjects of recent research.

Critics of the system acknowledge that most academic research is done by a relatively small proportion of faculty members, and that the many professors who have never published might benefit greatly if they did so occasionally. And yes, these critics say, it's true that the value of research often can't be determined in advance—the argument most often made by those on the other side.

"I have nothing against publishing," says William D. Schaefer, a retired English professor and former executive vice-chancellor at the University of California at Los Angeles. "The alert mind is going to constantly want to explore. It's the quantity that drives me nuts."

Mr. Schaefer published a book last year called *Education Without Compromise: From Chaos to Coherence in Higher Education*,



William D. Schaefer, former vice-chancellor at U.C.L.A.: "I have nothing against publishing. It's the quantity that drives me nuts."

which discusses the pressures of scholarly publishing. It recounts his frustrations when, as executive director of the Modern Language Association and editor of its chief journal in the 1970's, he tried unsuccessfully to solicit articles that would appeal to a wider audience. His views on scholarly research angered some: "I remember one department chairman shaking his fist at me, saying, 'We may be small, but we're a 13-book department,'" he recalls.

The Evidence Mounts

Indeed, the "publish or perish" conflict is hardly new. But it has taken on a greater urgency lately as criticism of undergraduate education has intensified, as scientists have found it harder to win grants, and as institutions that once emphasized teaching have stepped up their expectations for research.

At the same time, evidence documenting the conflict has multiplied:

A nationwide faculty survey released by the Carnegie Foundation for the Advancement of Teaching in 1989 found that more than half the professors at comprehensive institutions—and 42 per cent of those at research universities—felt that on their campuses publications were merely counted, not evaluated for quality. More than half of those at research universities rated the number of publications as a "very important" factor in getting tenure, while only 4 per cent viewed observations of their teaching as such.

The foundation also found that the proportion of professors who said tenure was difficult to achieve without publishing had doubled—to 42 per cent—since 1969, when it conducted a similar survey. At research universities, the proportion rose to 83 per cent, up from 44 per cent. At comprehensive institutions, it jumped to 43 per cent, up from 6 per cent. Even at liberal-arts colleges, which strongly value teaching, one-fourth of professors in 1989 said it was difficult to get tenure without publishing.

The foundation has since issued a report urging campuses to broaden the definition of what counts as scholarly research—another idea that is generating discussion in academe.

A survey released this month by scholars at the University of California at Los Angeles, meanwhile, found that nearly one-third of professors at public baccalaureate colleges—and a bigger proportion of those at research universities—felt that institutional pressures to do research interfered with their teaching. It also found that three-fourths of all professors felt that increasing or maintaining institutional prestige was a high priority for their campuses.

Stiff Resistance Likely

Those who would like to change an academic culture that places such a premium on the quantity of publication are likely to encounter stiff resistance.

For one thing, evaluating scholars is difficult, and the length of one's bibliography does provide some measure of his or her abilities, says William C. Kelly, vice-president for research at the University of Michigan. "I want to see the full bibliography," he says. "But I think we're seeing a healthy trend toward a deeper examination of quality."

The prestige issue is another major obstacle. Ironically, even as Stanford questions its expectations for research, many lesser-known universities aspire to be more like Stanford—by doing more research.

"At my university it comes down to numbers," says a professor at one such institution, who did not want to be identified because she has not yet come up for tenure. "A book is needed for tenure. It doesn't matter if it's a good book."

Such talk bothers David Ward, vice-chancellor for academic affairs at the University of Wisconsin at Madison. "The great research universities are viewed as precious global research universities," he says. Why, he asks, must the "Pondunk U.'s" aspire to imitate them?

Professors at Madison, Mr. Ward adds, are starting to talk about ways to emphasize quality over quantity.

Perhaps the biggest obstacle to changes in the system is the subjective notion of value. Mr. Schaefer invited criticism when he suggested in his book—with tongue only slightly in cheek—that the most worthless academic research be showcased in a special journal named, appropriately, *Twaddle*. That way, he argued, scholars might not produce so much of it.

Paradox in the Debate

Counters W. J. T. Mitchell, editor of the literary journal *Critical Inquiry*: "If he can figure out what's twaddle, fine."

Mr. Mitchell's response illustrates the paradox in the debate over whether much faculty research is worthless: Worthless, he and others ask, to whom?

If the concern in academe about over-publishing is most acute in the sciences, the humanities have borne the brunt of public criticism. Humanities scholars fear the criticism obscures important work being done in non-traditional areas involving issues of race, gender, and class.

"Anyone who expects that advanced research in the humanities ought to be accessible and readable to the man in the street is just crazy," says Mr. Mitchell, who is also chairman of the English Department at the University of Chicago. "I always found it hard to see why it should be a scandal that English professors have a professional identity and language."

Professors of English regularly find themselves defending that identity during the M.L.A.'s annual meetings, a favorite target of newspaper columnists who write about the many presentations with seemingly outrageous or esoteric titles.

But there again, argue the scholars and editors who publish such papers (which at last year's meeting had such titles as "More than Murder: Moral Agency in Lesbian Detective Fiction" and "Erotic Resistances in Shakespearean Drama: Boundaries, Apertures, Matrices"), value is in the eye of the beholder.

Language of 'Personals'

Take "The Language of Newspaper 'Personals,'" a paper delivered at the 1990 meeting by Elizabeth E. Ervin. "Believe me, I've questioned whether I should spend my time writing on personal ads," says Ms. Ervin, a doctoral candidate in rhetoric at the University of Arizona, who wrote her master's thesis on that topic. "I've had enough people rolling their eyes at me." (One friend told her that she'd be impressive when she devoted her energy to something serious.) But when she began looking critically at personal ads, she realized they "said a lot about popular culture."

"I don't think that's esoteric," she says. "I think things that are totally inaccessible to the public are esoteric—like 'Jane Austen and the Masturbating Girl.' That's going to stay within the hallowed walls."

She was referring to a paper delivered at the previous year's meeting.

Publications of Full-Time Faculty Members at Four-Year Institutions in 1986 and 1987

	Research and doctoral		Comprehensive and liberal arts	
	Proportion with publications	Average number of publications of each who published	Proportion with publications	Average number of publications of each who published
Refereed articles	70%	4.9	35%	2.6
Juried popular media	5	2.6	4	3.5
Reviews	25	2.8	16	2.9
Chapters	32	2.3	11	1.7
Textbooks	8	1.2	4	1.3
Books other than textbooks	10	1.3	5	1.4
Monographs	8	1.4	4	1.7
Non-refereed articles	30	2.8	20	2.9
Non-juried popular media	11	3.6	14	4.9
Other *	77	8.5	68	7.5
Total	91	14.6	78	10.6

Note: The figures are based on a 1988 survey of 11,013 faculty members at 480 colleges and universities. The response rate was 76 per cent. The figures cover only full-time "regular" faculty members, and exclude visiting, acting, and adjunct professors. The statistics were weighted to reflect the total population of full-time professors. The details do not add to the total because of multiple responses; the total reflects unduplicated counts. The faculty members were asked to report their publications and works accepted for publication in the two previous years.

* Includes technical reports distributed internally or to clients, workshops, presentations at conferences, exhibitions or performances in the arts, patents and copyrights, and computer software.

SOURCE: U.S. DEPARTMENT OF EDUCATION

In 2 Years, a Million Refereed Articles, 300,000 Books, Chapters, Monographs

By CAROLYN J. MOONEY

Professors at research universities appear to be in little danger of perishing.

Each of the nation's estimated 489,000 full-time faculty members produced an average of two refereed journal articles and 0.6 scholarly books, chapters in edited volumes, monographs, or textbooks during the previous two years, according to unpublished data from the Education Department. The data were collected during a 1988 faculty survey. Professors at research universities averaged twice as many publications; those at two-year colleges published far fewer.

If each professor was the sole author of each publication, his or her efforts would add up to nearly a million refereed-journal articles and 300,000 books, chapters, monographs, and textbooks over two years. Those figures may be somewhat high since the data don't show which publications have more than one author—a growing trend in the sciences and a few other fields. Nonetheless, they reflect the importance of publishing at research universities.

Refereed articles, scholarly books, chapters in edited volumes, and monographs are considered most important in evaluating a professor's scholarly work. The Education Department data also include textbooks, written by a small proportion of professors. Not included are the thousands of book reviews, articles in general-interest publications, technical reports, and conference presentations also produced by faculty members.

70% Had Articles

Among the survey's findings:

- At research and doctoral institutions, the proportion of professors publishing refereed articles in 1986 and 1987 was 70 per cent; chapters in edited volumes, 32 per cent; books, 10 per cent; monographs, 8 per cent; and textbooks, 8 per cent. At other four-year institutions, the proportion publishing refereed articles was 35 per cent; chapters, 11 per cent; books, 5 per cent; monographs, 4 per cent; and textbooks, 4 per cent.

- Among professors at all four-year institutions, those in the health and natural sciences had published the most refereed articles in 1986 and 1987. Those in the health sciences and social sciences had published the most books, chapters, monographs, or textbooks during those two years.

- During their entire career, health-science professors had published the most refereed articles—an average of 26.6. Those in the social sciences had written the most books, chapters, monographs, or textbooks—an average of 4.5.

There is plenty of other evidence of the demand for publishing.

Nobody seems to know exactly how many scholarly journals there are, but most estimates place the number of journals published in the United States in the tens of thousands.

The Institute for Scientific Information, a reference data bank in

Philadelphia, tracks articles in more than 7,000 scholarly journals, including foreign publications. It also maintains citation indexes—which document the number of citations attributed to literature in its data banks—for the sciences, social sciences, and humanities.

3,200 Literature Journals

Although the institute's president, Eugene Garfield, thinks it indexes "80 to 90 per cent of what's significant," it covers only a portion of U.S. and foreign academic journals. Some observers of publishing trends estimate that the indexes cover 10 per cent of scholarly journals, but Mr. Garfield thinks the number is at least 25 per cent.

The Modern Language Association's most recent Directory of Periodicals lists some 3,200 titles for journals and series dealing with literature, linguistics, language, and folklore. Of those, more than one-third are published in the United States and Canada, says the M.L.A.

The association recently analyzed the founding dates of still-existent journals listed in the directory, going all the way back to 1665 when *Journal des Savants* was founded in Paris by the *Académie des Inscriptions et Belles-Lettres* of the *Institut de France*. It found that the number peaked in 1970, when 99 journals that are still being published were established. Since then, there has been a decline in the number of such journals founded. There were 32 in 1988.

M.L.A. officials speculate that the decline may be linked to the drop in the pool of doctoral-degree candidates. Phyllis Franklin, the association's executive director, suggests that when the faculty job market was tight, "institutions could demand more from their junior scholars." That may change if the job market opens up in the coming decade, she says.

In the sciences, an analysis of citation rates, published in December in the journal *Science*, led to a ferocious debate over publishing. In an attempt to gauge what proportion of scholarly research in the sciences was valuable, the article examined how often scientific literature indexed by the Institute for Scientific Information had been cited by other scholars in the five years following its publication.

Fresh Ammunition

The article, based on data from the institute, concluded that 55 per cent of the literature remained uncited during that period. It also used data from another study to suggest that as much as 80 per cent of the literature was never cited more than once during that period.

David A. Pendlebury, a research analyst at the institute, later clarified the citation data. He noted in a letter to *Science* that the percentage of non-cited literature was actually lower because the index includes meeting abstracts, letters, and other written material normally not cited. When such material is excluded, he said, only about 22 per cent of scientific articles remained uncited during the five-year period. If only U.S. authors

were included, the figure would be even lower, he said.

Nonetheless, Mr. Pendlebury said in an interview, the analysis provided critics of the scholarly-publishing system with fresh ammunition.

"The interesting point is not really the data, but the reaction to the data," he says. "There's an underlying feeling that much of what is published is worthless."

As Ms. Franklin of the M.L.A. sees it, a certain amount of waste is

inherent in the system. But if more publishing leads to more bad books, it also leads to more good books, she says. To underscore her point, she turns to a 1935 book, *Literary Pioneers: Early American Explorers of European Culture*, in which the 19th-century American author George Ticknor is quoted as praising the German university system in a letter to Benjamin Franklin.

The German universities, he wrote, were ahead of others chiefly

due to "the constitution of their literary society generally, which admits no man to its honours, who has not written a good book. The consequence, to be sure, is that the professors are more envious and jealous of each other . . . and that more bad or indifferent books are printed than in any country in the world, but then the converse of both is true; and they have more learned professors and authors at this moment than England and France put together."

A Personal Crusade to Expose Flaws of the Tenure System

Continued From Page A13

lications and not too many trivial ones."

Mr. Mukerjee, a physical chemist, thinks universities should place more emphasis on a scholar's long-term citation record—the history of having one's work cited by other scholars. In the analysis of his work, Mr. Mukerjee examined his own citation record. From 1955 to October 1990, his analysis found, he wrote 77 articles and a monograph. The monograph took four years but has been cited hundreds of times. The average number of citations per article (excluding self-citations, in which scholars refer to their own work) is 68 and growing, he says. In comparison, only 2 per cent of all papers get more than 50 lifetime citations, he says.

The most widely used source for citations is thought to be the Science Citation Index of the Institute

for Scientific Information, a Philadelphia-based data bank that tracks articles from more than 7,000 scientific journals. Scholars often clash over how much weight to give a citation record. Some argue that it should not be used to evaluate young scholars, who haven't been working long enough for their work to be widely cited. Others say it perpetuates a bias toward certain types of research.

'He's Obsessed'

Although Mr. Mukerjee doesn't consider the I.S.I. data base perfect (for one thing, it doesn't include citations in books), he thinks universities ought to use it more often in the evaluation process.

The pharmacy school at Madison relies instead on a broad set of evaluation criteria, including a professor's publishing record, teaching, history of winning grants, and

work with graduate students, says August P. Lemberger, the school's dean. As for Mr. Mukerjee, the dean says, "He's done some outstanding work. He has had impact." But in academe in general, and perhaps in Mr. Mukerjee's case in particular, Mr. Lemberger says, "there's always an element of, 'What have you done lately?'"

Some of Mr. Mukerjee's colleagues are sympathetic toward his views. But at least one professor wishes he didn't have to hear them so often. "He's obsessed," the professor says. "He's so single-minded that every discussion ends with Einstein and Archimedes not being able to get tenure."

That doesn't ruffle Mr. Mukerjee. The way he sees it, he's only helping two scholars whose work made a lasting impact to get the recognition they deserve.

—CAROLYN J. MOONEY

Average Number of Publications by Full-Time Faculty Members in 1986 and 1987

BY TYPE OF INSTITUTION

	Refereed articles	Books, textbooks, book chapters, monographs	Book reviews	Other reports	Presentations, exhibitions
Public research	4.0	1.2	0.7	2.4	5.8
Private research	4.1	1.4	0.8	1.5	4.0
Public doctoral	2.7	0.8	0.9	1.7	5.1
Private doctoral	3.6	0.9	0.8	1.1	5.1
Public comprehensive	1.0	0.4	0.5	1.6	4.5
Private comprehensive	1.0	0.4	0.5	1.6	3.9
Liberal arts	0.6	0.3	0.4	0.9	3.2
Public two-year	0.2	0.2	0.3	0.7	2.4
Other *	0.9	0.6	0.7	1.5	5.5
All institutions	2.0	0.6	0.6	1.5	4.3

BY DISCIPLINE, AT 4-YEAR INSTITUTIONS ONLY

	Refereed articles	Books, textbooks, book chapters, monographs	Book reviews	Other reports	Presentations, exhibitions
Agriculture / home economics	3.3	0.6	0.2	3.1	5.4
Business	1.4	0.5	0.2	1.5	2.6
Education	1.5	0.7	0.4	2.0	5.1
Engineering	2.5	0.5	0.2	3.1	3.0
Fine arts	0.8	0.3	0.4	0.8	15.6
Health sciences	4.3	1.2	0.6	1.7	6.0
Humanities	1.4	0.8	1.4	0.9	3.3
Natural sciences	3.2	0.5	0.5	2.4	2.9
Social sciences	2.1	1.1	0.9	1.4	3.4
Other fields	1.2	0.6	0.7	1.5	3.0

Note: The figures are based on a 1988 survey of 11,013 faculty members at 480 colleges and universities. The response rate was 76 per cent. The figures cover only full-time "regular" faculty members, and exclude visiting, acting, and adjunct professors. The statistics were weighted to reflect the total population of full-time professors. The faculty members were asked to report their publications and works accepted for publication in the two previous years. The total includes private two-year colleges, which are not shown separately.

* Includes religious and other specialized institutions, excluding medical schools

SOURCE: U.S. DEPARTMENT OF EDUCATION

Ways & Means

Officials of two federal agencies are investigating whether Lauro F. Cavazos's travel practices as Education Secretary violated the law.

The investigation, by the Justice Department and the Education Department's Inspector General, was begun before Mr. Cavazos resigned in December, officials at the education agency said.

Investigators are looking into whether Mr. Cavazos violated regulations by using frequent-flyer credits earned on government trips to pay for his wife's travel.

The investigators are also interested in whether the former Secretary violated regulations by insisting on flying on Trans World Airlines.

Officials say Mr. Cavazos often took circuitous routes and may have paid higher fares than were available on other airlines so he could travel with his wife, Peggy. She often flew on Trans World because one of their sons works for the airline and received free tickets.

Mr. Cavazos could not be reached for comment last week.

Government officials said they did not know when the investigation would be completed.

University officials are protesting a Bush Administration proposal to increase the cost of obtaining patents.

Under the proposal, universities would no longer be able to take advantage of some of the special rates for patent fees that are available to them.

For most universities, the cost of filing and maintaining a patent would rise from \$3,495 to \$6,520. Higher-education officials note that today's fees are 69 per cent more than they were last year, so another increase would be particularly difficult.

Howard W. Bremer, former patent counsel to the Wisconsin Alumni Research Foundation, says the increase could discourage universities from filing patents. The foundation manages patents for the University of Wisconsin at Madison and filed for 30 patents last year.

Congress will consider the proposal this year as it reauthorizes the U.S. Patent and Trademark Office. Lawmakers have said they want to preserve the low rates for universities, but are unsure of how to do that without denying the patent office the money it needs to operate.

The Education Department has changed its toll-free number for students seeking information about federal student-aid programs.

The new number is 1-800-4FED AID.

Students who call the number can receive information about completing aid applications, eligibility requirements, and the award process. The Education Department has operated the number since 1987 and receives about 80,000 calls a month.

Government & Politics

Budget Office Proposes New Limits on Overhead Costs; IRS to Investigate Colleges Involved in the Scandal

IRS investigation

WASHINGTON

The Internal Revenue Service plans to investigate colleges involved in the scandal over overhead payments for federal research, to see if they may be violating tax laws governing non-profit organizations.

Marcus S. Owens, director of the I.R.S. Exempt Organizations Technical Division, said in an interview last week that the service planned to study whether the universities were claiming as deductions the same items for which they have been billing the government. He said he believed that "similar" items would turn up in the investigation.

The deductions would apply to the universities' unrelated-business income tax. That tax, known as UBIT, is paid by non-profit organizations on income they re-

ceive that is not related to their primary missions. The I.R.S. and some members of Congress have long been concerned that colleges have been using questionable deductions to limit their UBIT payments.

Mr. Owens said his interest in the topic had been prompted by newspaper reports about colleges' billing the government for yachts, wine, and foreign travel. "I am wondering, given the rather unusual items that are popping up as expenses, whether and to what extent the university accounting systems are putting the same expenses into the deductions they use to calculate their UBIT," he said.

Universities Not Identified

Universities typically report their UBIT deductions in general categories such as administrative costs, he said, noting that many of the controversial items in the

Continued on Page A24

Budget Office limits

By COLLEEN CORDES

WASHINGTON

The White House Office of Management and Budget proposed new limits last week on overhead reimbursements for federally supported research. About 75 major research universities may collectively lose as much as \$100-million a year under the plan.

The major change would set a limit of 26 per cent on the rate that universities can charge for administrative overhead costs related to research. That means that for every dollar that a university receives for most of the direct costs of a research project, it could receive no more than 26 cents for the costs of administrative overhead.

At present, the rate for administrative overhead ranges from about 12 per cent to 45 per cent, according to the budget office. Thomas A. Scully, associate director of O.M.B. for human resources, said 26 per cent was about the average at major research universities.

Federal officials said they did not know exactly how many institutions would lose money under the proposal, which could take effect as early as next month. But of the major research institutions, about 75 now have rates above the new ceiling, Mr. Scully said.

Congress Eyes Tighter Restrictions

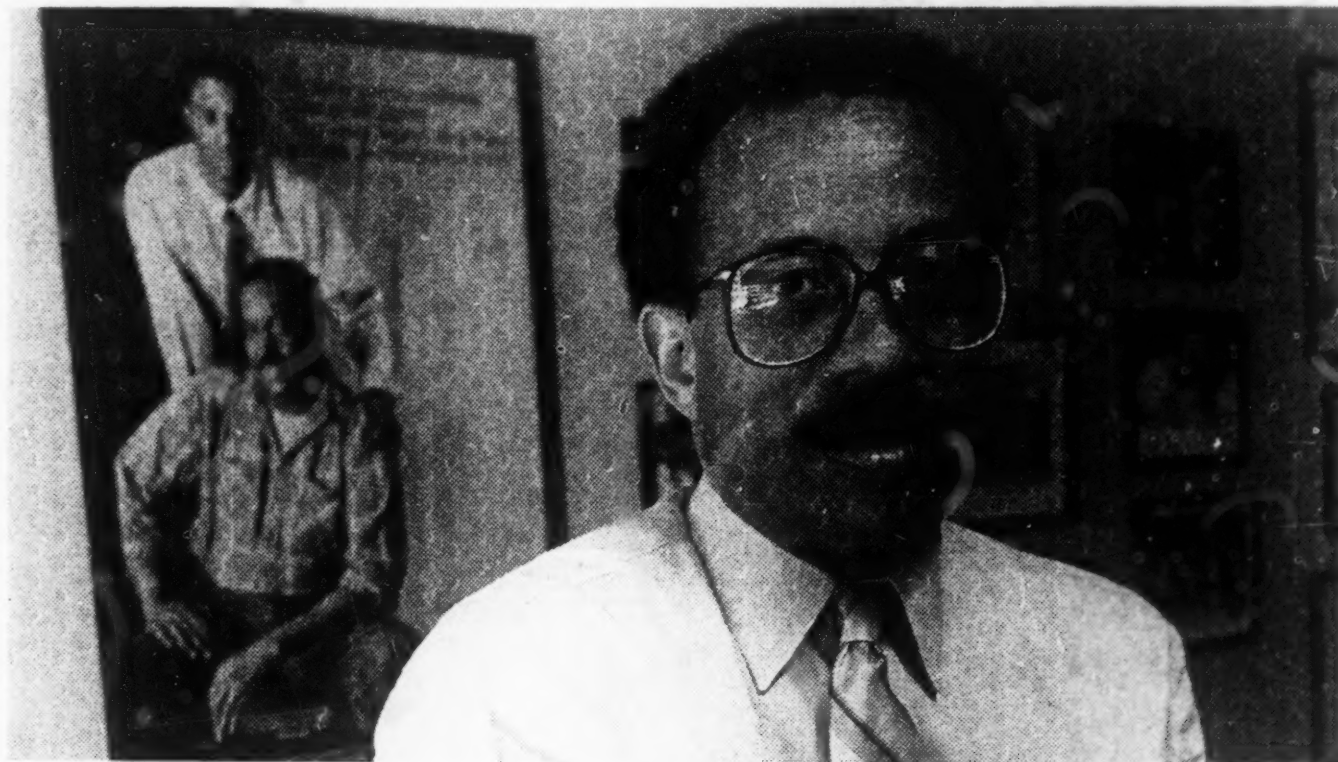
The proposed change, he added, represents a reasonable approach to preventing university abuses of the overhead system. Congress may decide to impose even tighter restrictions on overhead, he noted. Federal research agencies will spend the money thus saved—which he estimated at \$70-million to \$100-million—on other research awards, so research will not be hurt, he said.

"We need to be and are in fact concerned with making sure the universities get a fair break," Mr. Scully said.

But many higher-education officials said the new ceiling on administrative overhead would cause serious damage to the research programs at institutions that have collected a higher rate for their administra-

Continued on Page A24

Interest Groups Prepare for Sharp Debate Over Title III Aid for 'Have Not' Colleges



William A. Blakey, a lawyer who represents many black colleges: "You can't take Hispanic institutions and use a black-college model to design a program."

By SCOTT JASCHIK

WASHINGTON

Title III of the Higher Education Act provides funds for higher education's "have nots": community colleges with burgeoning enrollments, historically black colleges that enroll many students who cannot afford the tuition, and small private colleges with minuscule endowments.

Although the program is small—its current budget is \$205-million—the 395 colleges and universities that participate say the money allows them to do things they could not afford otherwise. Dillard University uses Title III funds for an honors program and to make its teacher-education program more rigorous. Highline Community College is upgrading its computer facilities. Ottawa University was able to match a \$1-million challenge grant, thereby tripling its endowment.

For a program with so many supporters, both on campuses and on Capitol Hill, Ti-

tle III may be in for rocky times during the reauthorization of the Higher Education Act. Starting this week, Congress is expected to hear sharply conflicting reports about which institutions and ethnic groups

Continued on Page A22

10 States to Receive \$75-Million From NSF to Improve Teaching of Science and Math

By GOLDIE BLUMENSTYK

WASHINGTON

The National Science Foundation has chosen 10 states to receive a total of \$75-million for comprehensive programs to improve the teaching of mathematics and science in schools and colleges.

The N.S.F. announced the winning states last week. Thirty had applied to participate.

In addition to the \$75-million, which will be awarded over five years, the 10 states have collectively pledged to spend nearly \$100-million in additional public and pri-

Continued on Following Page

The 10 Winning States

Connecticut	\$7,866,725
Delaware	\$4,941,991
Florida	\$7,903,883
Louisiana	\$10,000,000
Montana	\$9,942,175
Nebraska	\$4,471,914
North Carolina	\$7,856,586
Ohio	\$10,000,000
Rhode Island	\$9,351,042
South Dakota	\$7,517,040

10 States Win \$75-Million From NSF to Improve Science, Math Programs

Continued From Preceding Page
vate funds over the same time period. Some states appropriated a portion of those funds to the effort this year.

Walter E. Massey, the foundation's director, said the statewide effort was significant not only for the level of financial support, but also because the strategies are designed to address a range of issues and touch on many components of the education system, including

teachers in the new curricula, and expanding the use of telecommunications technology.

Mr. Massey, speaking at a press conference here, said the program was a departure for the N.S.F. because of its emphasis on "systemic" approaches, rather than on grants for single efforts, such as curriculum reform or improving teacher training.

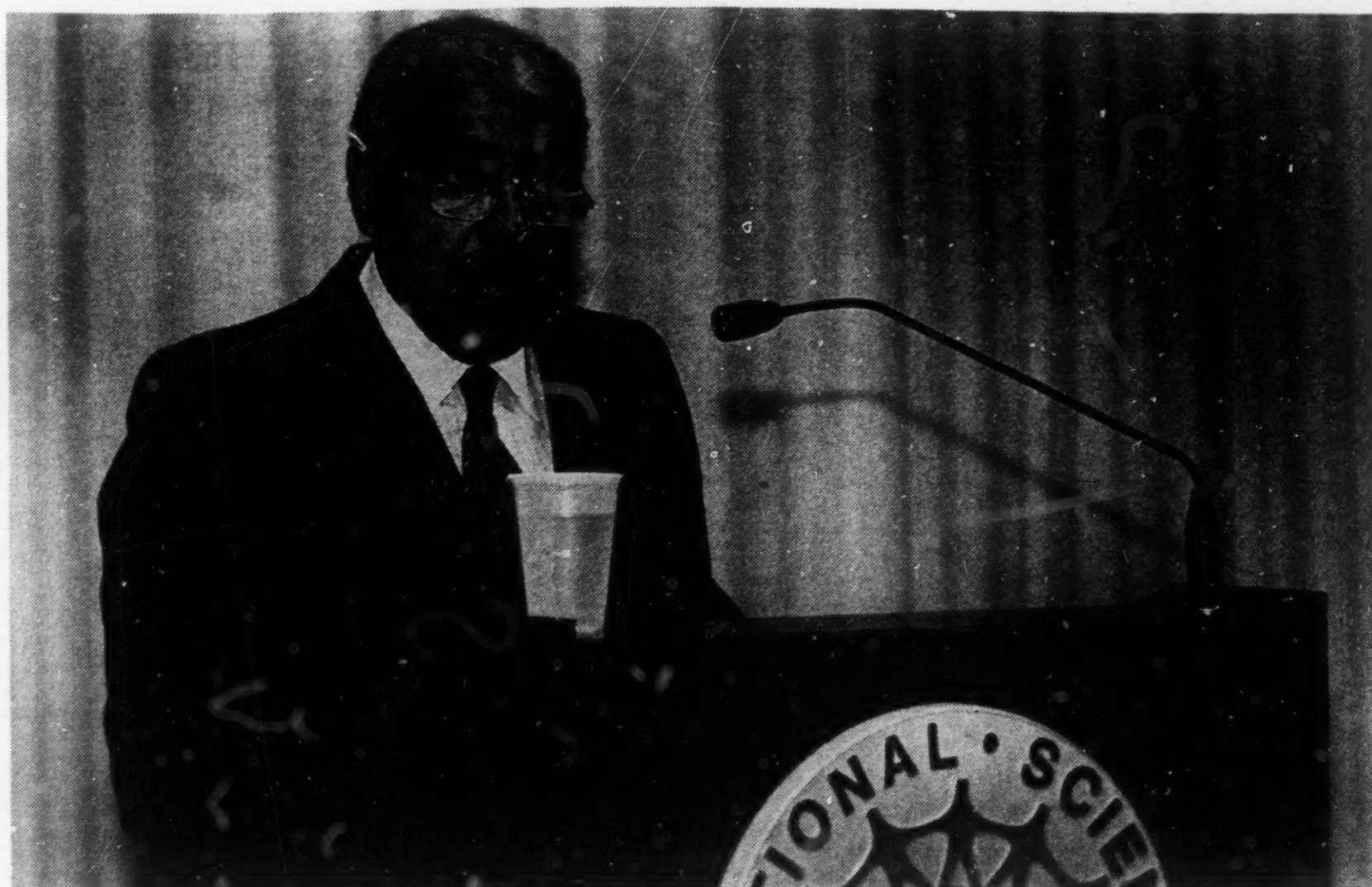
'Hands-on Involvement'

Also, Mr. Massey said, the foundation's money will be awarded as part of cooperative agreements with the states, and N.S.F. staff members will have a continuing "hands-on involvement" with the programs. The N.S.F. will monitor the progress of the efforts according to standards set out by the states in their proposals.

Although most of the programs are aimed primarily at elementary and secondary schools, many could dramatically change college-level teaching of mathematics and science, grant recipients said. The changes at the college level will come in the training of new teachers, and eventually in shifting the college curriculum to reflect the skills that students will have once they go through the revised high-school program.

In Montana, state officials plan to use the nearly \$10-million from the N.S.F. and \$16-million from other sources to overhaul the high-school mathematics curriculum. Under the new format, modeled on a curriculum used in the Netherlands, students will be taught algebra, geometry, probability, and data analysis every year, rather than spending a year on each subject. They also will use computers and other tools as part of their regular lessons.

The idea, said Daniel T. Dolan, mathematics supervisor for the state Office of Public Instruction,



Walter E. Massey, director of the N.S.F.: The program was a departure for the foundation because of its emphasis on "systemic" approaches.

is to show students situations where mathematics principles can be applied, and to have technology "totally embedded in the curriculum."

To meet those goals, the state will have to "teach teachers to teach differently," Mr. Dolan said. The new curriculum will be developed by professors at the University of Montana and Montana State University. Some of the state and N.S.F. funds also will be used to provide more computers for classroom use at the colleges.

An Immeasurable Boost

The Montana proposal also calls for cooperative efforts with school districts on American Indian reservations and with tribal colleges.

South Dakota officials also plan to use the money to change the curricula for mathematics and science. The state has already committed about \$1.3-million toward the effort, but Howell Todd, executive director of the state Board of

Regents, said "there's no question" the \$7.5-million from the N.S.F. will give the program an immeasurable boost.

North Carolina's proposal takes a different tack. With its \$7.8-million from the N.S.F. and \$3-million from other sources, state officials

plan to promote the idea of a technical-preparatory curriculum, suitable for students who plan to pursue two-year technical degrees at community or technical colleges. The programs would be developed with assistance from community colleges.

Although most of the programs are aimed primarily at schools, many could dramatically change college-level teaching of mathematics and science.

community attitudes that affect education.

For example, as part of the Nebraska program, state officials plan to use prominent business leaders in a public-awareness campaign that focuses on the importance of science and mathematics in key state industries.

Parents Are Blamed

"There are far too many parents who say, 'I was never good at it, it's O.K. if my child isn't good at it,'" said Jim Lewis, chair of the mathematics department at the University of Nebraska at Lincoln.

The university will receive nearly \$4.5-million from the N.S.F. and has pledged an additional \$1.5-million from state and local sources. It will also be involved in other aspects of the Nebraska proposal, including developing a new mathematics curriculum for elementary and secondary schools, providing courses for new and experienced

STATE NOTES

- U.S. court upholds constitutionality of Md. program for blacks
- Arkansas lawmakers pass bill to overhaul technical education

A federal court last week upheld the constitutionality of a Maryland scholarship program that is available only to black students. The program is part of a court-ordered desegregation plan for the University of Maryland.

Scholarships designed to redress past discrimination have generally been considered legal under federal civil-rights laws, particularly when a state's colleges have been found to be illegally segregated. But lawyers for the university said this ruling was significant because it was the first time a court had formally affirmed that.

The ruling was issued by Judge J. Frederick Motz of the U.S. District Court in Baltimore. Judge Motz cited the state's past segregation in his decision.

At issue was the Benjamin Banneker Scholarship Program, created in 1978 for Maryland residents. The scholarships cover tuition, room, board, and other expenses,

and are worth about \$33,500 over four years.

Daniel J. Podberesky, a white freshman at the university, sued in June, claiming that the scholarship was illegal because it was available only to black students.

Mr. Podberesky's lawyer—his father, Samuel—said he had not yet had a chance to see the opinion or decide whether to appeal. But he had contended earlier that the university's authority to offer "race based" scholarships ended when its court-mandated plan expired in June 1989. The Education Department, however, has not yet declared Maryland to be desegregated.

■
The Arkansas General Assembly has approved legislation designed to improve post-secondary technical education and bring it within driving distance of all state residents. It

has also approved a new tax on business to pay for the overhaul.

Gov. Bill Clinton, a Democrat, has signed the legislation.

Among other things, the law would upgrade 12 of the state's 24 vocational-technical schools to technical colleges. As colleges, the institutions would be required to offer college-level curricula and could issue associate degrees.

Authority over the 12 institutions would shift from the Board of Vocational Education to the Department of Higher Education.

Money to develop the new curricula in mathematics, science, and the liberal arts, hire new faculty members to teach the courses, and improve libraries will come from an increase in the tax rate on corporate income above \$100,000. State officials estimate that the increase, from 6 per cent to 6.5, will raise \$10- to \$12-million a year.

—GOLDIE BLUMENSTYK

Stanford Fires Lecturer Who Boasted of Defying Federal Anti-Drug Laws

Stanford University has fired a faculty member who boasted that he was defying federal anti-drug laws.

Stuart Reges, a senior lecturer in computer science, was dismissed after an investigation of his claims that he had carried the drug M.D.A. on campus and had used university funds to purchase alcohol for underage students. M.D.A. is an amphetamine derivative that usually produces euphoria in users.

In an interview last week, Mr. Reges said that he would either appeal his dismissal through the university's grievance process or sue the university.

In the letter informing Mr. Reges that he was being dismissed, James F. Gibbons, dean of the university's engineering department, said Mr. Reges had admitted to at least two violations of Stanford's anti-drug policy. All colleges and universities that receive any federal funds are required to have such policies in place.

Series of Letters

Mr. Reges triggered the investigation by writing letters about his drug use to *The Stanford Daily* and to federal officials. In a letter to Bob Martinez, director of federal drug policy, Mr. Reges wrote: "I disagree with the government's anti-drug campaign and I am doing everything I can to make fools of you."

Mr. Reges said he regularly carried drugs in his backpack on the campus. He challenged Mr. Martinez: "If your office gives



Stuart Reges, the lecturer fired by Stanford: "I have been found guilty in no court of law and yet I am being dismissed."

you any power to try to force me to change my behavior, I suggest that you apply it."

After receiving Mr. Reges's letter, Mr. Martinez wrote to Donald Kennedy, president of Stanford, reminding him of the university's obligations under the federal anti-drug laws.

Shortly after Mr. Kennedy received the letter, the university placed Mr. Reges on paid administrative leave.

Mr. Reges said last week that the university's action had been in direct response to Mr. Martinez's letter, which threatened the loss of federal funds if the university did not enforce the anti-drug laws.

Mr. Reges said his action had highlighted the question of "who's going to enforce the drug laws?" He said: "I have been found guilty in no court of law, and yet I am being dismissed. The universities have become part of the drug police." —CHRISTOPHER MYERS



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WASHINGTON ALMANAC

New Bills in Congress

WASHINGTON

Following is a summary of bills of interest to higher education that have been introduced in Congress. Copies of bills may be obtained from Representatives (Washington 20515) or Senators (Washington 20510).

HOUSE OF REPRESENTATIVES

Accreditation. HR 2246 would bar the Education Secretary from granting departmental recognition to accrediting agencies that do not take action against institutions with high default rates or low retention rates for students. In addition, the bill would bar the Secretary from recognizing agencies that do not take action against vocational and proprietary schools with low job-placement rates. By Representative Gordon (D-Tenn.).

American Indians. HR 1690 would authorize the creation of an American Indian university to serve students who have graduated from tribally controlled two-year colleges. By Delegate Faleomavaega (D-American Samoa).

Athletics. HR 2157 would require the National Collegiate Athletic Association to provide due process in taking disciplinary action against coaches, players, and colleges. By Representative Towns (D-N.Y.).

Athletics. HR 2243 would create the National Commission on Intercollegiate Athletics, which would be appointed by the President and Congressional leaders to study all problems related to college athletics. By Representative Dymally (D-Cal.).

Biomedical research. HR 2278 would authorize \$25-million in additional spending by the National Institutes of Health for research on ovarian cancer and \$10-million in additional spending by the N.I.H. for research on other women's health issues. By Representative Hoyer (D-Md.) and five others.

Immigration. HR 2150 would amend the Immigration and Nationality Act to grant legal immigrant status to foreign holders of terminal degrees seeking to work at American colleges and universities. By Representative Slattery (D-Kan.).

Medical education. HR 2231 would require that medical colleges and teaching hospi-

tals seeking grants under the General Internal Medicine and Pediatrics Program have departments of family medicine and require their students to be trained in family medicine. By Representative Cooper (D-Tenn.) and 25 others.

National Institutes of Health. HR 2281 would reauthorize the National Institutes of Health. By Representative Waxman (D-Cal.).

National Science Foundation. HR 2282 would reauthorize the National Science Foundation. By Representative Boucher (D-Va.) and 17 others.

Nursing education. HR 2300 would authorize the forgiveness of Perkins Student Loans for people who work as nurses for certain periods of time. By Representative Mink (D-Hawaii).

Student aid. HR 2331 would permit students enrolled less than half time to obtain Pell Grants. By Representative Mink (D-Hawaii) and 13 others.

Student loans. HR 2171 would require lenders to students to notify borrowers of any assignment or transfer of their loans. By Representative Frank (D-Mass.).

Student loans. HR 2336 would establish a loan program that would base repayment schedules on borrowers' income levels. By Representative Petri (R-Wyo.) and 15 others.

Taxes. HR 2205 would exclude income from scholarships and fellowships from taxable income and would allow interest payments on education loans to be deducted from taxable income. By Representative Hammer-schmidt (R-Ark.).

Taxes. HR 2218 would exclude income from annuities from taxable income if the annuities were set up to finance a college education. By Representative Vander Jagt (R-Mich.) and Representative Jacobs (D-Ind.).

Taxes. HR 2340 would allow penalty-free deductions from Individual Retirement Accounts if the money were used for educational costs. By Representative Tallon (D-S.C.).

SENATE

Bethune Cookman College. S 1023 would authorize \$9.5-million for a fine-arts center at Bethune Cookman College. By Senator Graham (D-Fla.).

Biomedical research. S 966 would authorize the establishment of five biomedical-research centers, three for contraceptive research and two for infertility research. By Senator Harkin (D-Iowa).

Copyright. S 1035 would alter copyright law

to make it easier for scholars to quote from unpublished letters and documents. By Senator Simon (D-Ill.) and six others.

Social science research. S 1031 would establish within the National Science Foundation a separate division to support research in the social sciences. By Senator Kerry (D-Mass.).

Technology. S 1034 would reauthorize the Technology Administration and the National Institute of Standards and Technology. By Senator Hollings (D-S.C.).

In Federal Agencies

Scientific misconduct. The National Science Foundation has amended the rules governing its guidelines for investigating allegations of misconduct so that the guidelines include educational activities as well as research (*Federal Register*, May 14, Pages 22,286-290).

Student aid. The Education Department has proposed rules for changing the system of checking the immigration status of all students seeking federal financial aid. Through a computer link with the Immigration and Naturalization Service, the department would check applicants' citizenship. Currently, that job is the responsibility of the college or university that the applicant attends. Comments must be received by June 28 (*Federal Register*, April 29, Pages 19,782-7).

Student loans. The Education Department has proposed rules that would deny eligibility for loans to students at colleges with default rates that exceed 35 per cent in the Stafford Loan Program. The rules carry out deficit-reduction laws enacted in 1989 and 1990. Comments must be received by June 12 (*Federal Register*, May 13, Pages 22,056-61).

Veterans' benefits. The Veterans Affairs Department has issued final rules that make technical changes in the eligibility requirements for the basic entitlement to a program of vocational rehabilitation (*Federal Register*, April 18, Pages 15,835-6).

Washington People

Kay W. Riddle, vice-chairwoman of the Republican National Committee, has been nominated by President Bush to the National Commission on Libraries and Information Science.

Candace Somerville, a consultant in Washington, has been appointed by President Bush to the National Council on Vocational Education.

FACT FILE: Defense Department Contracts to Non-Profit Organizations, Fiscal 1990

Massachusetts Institute of Technology	\$455,149,000	New Mexico State University	\$13,507,000
Aerospace Corporation	416,217,000	University of Illinois	10,908,000
Mitre Corporation	407,283,000	University of Pittsburgh	9,619,000
Johns Hopkins University	373,946,000	University of Maryland	9,145,000
Rand Corporation	79,348,000	Georgia Institute of Technology	9,032,000
IIT Research Institute	63,424,000	Cornell University	8,946,000
Institute for Defense Analyses	60,081,000	Riverside Research Institute	8,559,000
Pennsylvania State University	61,621,000	National Academy of Sciences	8,233,000
Charles S. Draper Laboratory	58,489,000	Woods Hole Oceanographic Institution	8,207,000
Carnegie Mellon University	57,229,000	University of Alabama	7,830,000
University of Texas System	49,047,000	University of Minnesota	7,824,000
Utah State University	44,562,000	University of Pennsylvania	7,422,000
University of California	39,259,000	Hudson Institute	7,079,000
SRI International	37,067,000	Southwest Research Institute	6,867,000
Analytic Services Inc.	34,751,000	University of Michigan	6,698,000
University of Southern California	30,953,000	Salk Institute for Biological Studies	6,627,000
Georgia Tech Research Corporation	27,593,000	Massachusetts General Hospital Corporation	6,580,000
Battelle Memorial Institute	26,199,000	Research Triangle Institute	6,206,000
University of Washington	26,796,000	Rutgers University	5,721,000
Stanford University	23,317,000	University of Arizona	5,515,000
Trident Technical College	21,022,000	Southeastern Center for Electrical Engineering Education	5,261,000
Logistics Management Institute	20,311,000	Columbia University	5,215,000
Environmental Research Institute of Michigan	13,724,000		

Note: The list includes those colleges, universities, and other non-profit organizations that received a total of \$5-million or more in contracts from the Department of Defense. The figures cover only contracts of more than \$25,000 for research, development, testing, and evaluation for military projects and for civilian water-source projects. Other types of funding are not included in this table.

SOURCE: U.S. DEPARTMENT OF DEFENSE

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News Summary

Articles on inside pages

A study of patient histories suggests that Freud distorted facts that did not support his theories, a historian of science says: Page A4.

The Hubble Space Telescope continues to provide useful scientific data despite a flawed mirror, according to astronomers: Page A5.

A suit alleging copying of computer software at the U. of Oregon will probably be settled out of court, say spokesmen for both sides: Page A9.

As the debate over "political correctness" polarizes campuses, some professors are staking out a middle ground in their classrooms: Page A9.

The Education Department is reconsidering its position on a 1974 privacy-protection law: Page A15.

A fourth member of the Bass family has given Yale University a gift of \$20-million: Page A27.

Panels of the AIDS Memorial Quilt were on display at Dartmouth College for an emotional three-day event: Page A28.

"Mock Students" at the Oberlin Conservatory is an annual student rebellion against rehearsals, recitals, quartets, and auditions: Page A29.

The second woman ever to run a big-time athletics program has been appointed by the U. of Washington: Page A31.

Soviet Communists are struggling to maintain their influence over higher education: Page A33.

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Ivy League Agrees to End Collaboration on Financial Aid

But MIT will fight U.S. antitrust charges; settlement in 2-year-old case seen killing Overlap Group

By SCOTT JASCHIK

WASHINGTON

The eight Ivy League universities agreed last week to stop setting joint financial-aid policies and sharing information about the aid packages for students admitted to more than one institution.

The agreement was announced by Attorney General Dick Thornburgh and came on the same day that the Justice Department formally charged the Ivy League universities and the Massachusetts Institute of Technology with violating federal antitrust laws.

M.I.T., saying that it had violated no laws, refused to go along with the agreement and will now have to answer the charges in federal court. For the Ivy League, the agreement effectively closed the case.

Focus on 23 Private Institutions

The Justice Department has been investigating possible antitrust violations by colleges for nearly two years, with a focus on the Overlap Group. The group consists of 23 prestigious private institutions—including the Ivy League and M.I.T.—that have met each year to compare financial-aid awards being offered to prospective students.

Federal and university officials said that last week's announcement would effectively kill the Overlap Group, which was started in 1956. The Justice Department

What Ivy League Colleges Have Pledged Not to Do

- Agree with any other college or university on any part of the financial aid awarded to any student.
- Agree with any other college or university on how contributions by families will be calculated.
- Agree with any other college or university to apply a similar or common "needs-analysis formula."
- Exchange with any other college or university information on how a needs-analysis formula has been applied to a specific applicant for financial aid.
- Exchange information with any other college or university on how family or parental contributions will be calculated.
- Agree with any other college or university whether or not to offer merit aid.
- Exchange with any other college or university its plans or projections for summer-savings requirements for students receiving financial aid.
- Exchange information with any other college or university about the financial aid awarded to or proposed to be awarded to any financial-aid applicant, except as required as federal law.
- Exchange with any other college or university any information about plans or projects—including budget projections—regarding future student fees or faculty salaries.
- Enter into any arrangement with any other college or university to "fix, establish, raise, stabilize, or maintain student fees or faculty salaries."

took no action against the 14 members besides the Ivy League institutions and M.I.T. last week, but the suit filed by the department said: "Various others, not named as defendants, have participated as co-conspirators with defendants in the violations."

Mr. Thornburgh also said that the Jus-

tice Department's investigation was continuing.

The Ivy League universities and most of the other Overlap institutions said last week that they would maintain their policies of offering student aid based only on financial need. But student-aid experts

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Report Says Uncapping of Mandatory Retirement Won't Harm Colleges

By DEBRA E. BLUM

WASHINGTON

The uncapping of mandatory retirement for professors will not clog the system with unproductive scholars and will probably affect only a few research universities, a long-awaited federal report says.

If Congress, the Internal Revenue Service, private pension companies, and the U.S. Equal Employment Opportunity Commission help colleges to prepare for the expected end of mandatory faculty retirement, Congress should not continue to exempt beyond 1993 tenured professors from the law that abolishes mandatory retirement, the report concludes.

"It's colleges and universities working

Continued on Page A12

Universities Award Record Number of Doctorates; More Than 25% Go to Students From Overseas

By CAROLYN J. MOONEY

American universities awarded a record number of doctorates in 1990, with more than a fourth going to non-U.S. citizens.

The total number of doctorates awarded to Americans actually fell by 4.1 per cent from 1980 to 1990, but the number who earned doctorates in science and engineering rose slightly during the decade.

Those were among the findings of the most recent annual survey conducted by the National Research Council for five federal agencies. The National Science Foundation released an early report of the data that focused on science and engineering trends. A full report will be available later this year from the research council.

Because doctoral-degree recipients have traditionally formed the pool from which future scholars are drawn, the data are followed closely by higher-education officials and policy makers seeking to determine what the professoriate of the future will look like. If the latest data are any indication, it will include more women, slightly more minority-group members, and possibly more non-U.S. citizens in certain fields than was the case a decade ago.

Among the survey's findings:

- Over all, minority-group members

Americans Who Received Ph.D.'s Last Year

	1990	10-year change
White	21,650	-1.6%
Black	828	-19.8
Hispanic	698	+69.4
Asian	617	+34.7
American Indian	93	+24.0
Race unknown	304	—
All U.S. citizens	24,190	-4.1

SOURCE: NATIONAL SCIENCE FOUNDATION

made up just over 10 per cent of U.S. doctorate recipients in 1990 whose race was known. Except for Hispanics, U.S. minority-group members earned about the same number of doctorates in 1990 as in 1989. Hispanics earned 698 doctorates, up from 582; blacks earned 828; Asian-Americans 617; and American Indians 93. U.S. whites earned 21,650 doctorates, up from 20,892.

- With the exception of blacks, mem-

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In Congress, Skepticism Grows About Big-Science Projects

Proposed cuts in the space station and supercollider suggest that Congress is becoming skeptical about continued support for big-science projects.

STORY ON PAGE A15

MARGINALIA

Headline in *The Ram Page*, the paper at Angelo State University:
DEATH HAS IMPACT ON LIVES
No arguing with that.

Memorandum to the liberal-arts faculty at the University of Tennessee in Knoxville:

"In February 1991 the faculty was invited to nominate candidates for election to fill ten Liberal Arts positions in the Faculty Senate. This invitation plus subsequent calls to Departments produced a total of ten nominations. Barring objections from members of the faculty the ten candidates will be understood as elected by accumulation."

That's as good a way as any.

From the minutes of a meeting of the Student Media Communications Committee at Hope College:

"It was moved and seconded that Carrie Maples and Steve Kaukonen be appointed co-editors of *anchor*. The motion was passed anonymously."

"It was moved and seconded that Holly Villepique be appointed editor of *Milestone*. The motion was passed anonymously."

Don't be so shy!

Memo from the Physical Facilities Department at Miami University:

"Due to the replacement of a defective electrical breaker on Chiller #2, the Chilled Water System will be shut down on Friday, May 24 at 8:00 A.M. and will be returned to normal service at 6:00 P.M. the same day."

"... This particular time and date have been researched and are believed to be the most beneficial and disruptive."

You equate the two?

From an article in *CTA Action*, a newspaper of the California Teachers Association:

"Eighty percent of first graders have high self-esteem, she says. By the time they reach 6th grade, about 20 percent have high self-esteem. By high school, maybe 5 percent still think highly of themselves. By adulthood, a mere one out of three has high self-esteem. . . ."

"When it comes to reaching goals, Lopez told teachers, 'What limits us is our thinking. There isn't anything I can't do that I don't want to.'"

If you say so.

Memo to faculty members at Wittenberg University:

"The National Security Agency (NSA) has just scheduled to interview at Wittenberg. . . . They are looking for math and computer science majors to work in a number of capacities, including crypt analysis."

Spooks?

—C.G.

In Brief

Georgetown law student disciplined, will graduate

WASHINGTON—A Georgetown University law student who angered some at the institution with an article in the *Georgetown Law Weekly* that criticized affirmative action received a letter of reprimand from the university, but will be allowed to graduate this week.



THE WASHINGTON POST

The letter will not be a part of the student's official grade transcript.

Black students had accused the author of the article, Timothy Maguire (left), of being racist, and had called for his expulsion.

Mr. Maguire, a third-year student, worked as a file clerk in the Georgetown Law Center's admissions office. In the April 8 article, he wrote that black students admitted to the Law Center had earned lower undergraduate grades than white students and had typically scored lower on the Law School Admissions Test.

University officials said the admissions office had asked its staff to keep information confidential. In the future, employees will be asked to sign non-disclosure agreements.

Mr. Maguire acknowledged that he had violated his pledge not to disclose information he obtained while working in the admissions office.

U.S. seen near top in college spending

WASHINGTON — The United States spends more money on higher education per student than most other industrialized countries, according to a report by the American Council on Education.

The report, "Higher Education Expenditures and Participation: An International Comparison," shows that the United States spent about \$8,000 on each college student in 1985. The report compared education spending among 36 industrialized and less-developed countries. It cautioned that the data—much of it from 1985—did not allow for precise

comparisons because countries use different accounting methods.

Only Denmark, which spent just over \$8,000 per college student, ranked higher than the United States. Australia and Switzerland ranked about the same as the United States. Spending in other countries ranged from just over \$6,000 in Japan and the Netherlands to a low of \$2,000 in Italy.

Cal. State system's chief is first to get contract

LONG BEACH, CAL.—The new head of the California State University, Barry Munitz, has been given a "rolling" three-year contract, ending the system's policy of having its chancellors serve at the Board of Trustees' pleasure.

The contract calls for annual reviews of Mr. Munitz's performance and one-year extensions if both he and the board agree. If either party gives notice at the time of the review, the pact can be terminated, effective in two years. The board could still buy out his contract before its conclusion at his annual salary of \$175,000. But he cannot otherwise be fired unless for cause.

A university official said the offer of a multi-year contract was discussed by the board with all of the finalists for the post and reflected an emerging trend toward written contracts for top executives in higher education.

Federal marshals close Virginia fraternity houses

CHARLOTTESVILLE, VA.—U. S. marshals last week closed three University of Virginia fraternity houses that were seized in March after a drug raid by federal, state, and local law-enforcement officers.

The 60 students who lived in the houses, including Delta Upsilon's (above), will have to find other housing in the fall.

Wayne D. Beaman, U.S. Marshal for the Western District of Virginia, said closing the houses was part of a plan initiated when the property was seized.

Mr. Beaman said it was the first time the federal government had taken over fraternity houses.



Iowa gets \$1.5-million from sale of painting

IOWA CITY—A painting that was sold at auction by Christie's this month will bring \$1.5-million to the University of Iowa. The

painting, "Self-Portrait with Loose Hair" (above), was completed in 1947 by the Mexican artist Frida Kahlo. The painting's former owner, Louise R. Noun, is donating the proceeds of the sale to the university to establish the Iowa Women's Archives.

U. of Wisconsin to allow gays in family housing

MADISON, WIS.—The University of Wisconsin has adopted a housing policy that allows same-sex couples and unmarried heterosexual couples to live in family housing complexes that previously had been reserved for married couples and single parents. The policy will affect 1,122 university-owned apartments.

To qualify, unmarried couples must register with the City of Madison as domestic partners—defined as two persons occupying the same dwelling "in a committed and exclusive relationship."

University officials said they had received only a few complaints about the new policy.

Correction, clarification

■ An article about the sports program at the College of William and Mary (*The Chronicle*, May 8) incorrectly reported that the University of Wyoming does not sponsor a varsity women's basketball team. It does.

■ A spokesman for the Internal Revenue Service said last week that earlier comments from I.R.S. officials about a possible investigation of colleges involved in the scandal over overhead costs were

unclear (*The Chronicle*, May 22). The spokesman said that the issues raised in the overhead-cost scandal had prompted I.R.S. interest in investigating whether the accounting systems of colleges were being used in the same way to reduce payments of the unrelated-business income tax. The spokesman said the inquiry would look at colleges generally, not just those that have been involved in the overhead-cost controversy.

U. of Arizona Western-Culture Courses Try to Stake Out the Middle Ground

Continued From Preceding Page history. Students in the courses, which attract from 60 to 150 students, attend two lectures and one small discussion meeting each week.

In "The Problem of Evil," students explore evil as a concept in the Judeo-Christian tradition; in non-Western cultures such as Buddhism and Kiowan Indian mythology; during the 18th-century Enlightenment movement; and in the human psyche and human institutions. They begin with Greek mythology and the Bible, then move on to readings by Pope, Voltaire, Rousseau, and Nietzsche. Other texts include *Faust*, *Frankenstein*, *The Strange Case of Dr. Jekyll and Mr. Hyde*, *The Plague*, a Russian novel called *The Master and Margarita*, and *Sanctuary*. They also view slides of works by German Expressionist artists and watch the films *Metropolis*, *Looking for Mr. Goodbar*, and *Do the Right Thing*. (The Beethoven opera and the Pink Floyd film *The Wall* were assigned for the course on war, along with the *Iliad*, Shakespeare's *Henry V*, and other texts.)

Loyalties to Both Sides

Mr. Canfield, who directs the university's interdisciplinary comparative-literature program, feels loyalties both to advocates of Western culture and to those trying to broaden the way it is defined. He is among a group of professors seeking to establish a department of cultural studies—a growing movement in academe that reaches across humanities and social-sci-

ence disciplines to examine how cultural assumptions are formed.

Mr. Canfield suspects he may even be "politically correct," if the term is defined as describing the attitudes of those who want to make the curriculum and campus climate more open to women and members of minority groups. Lately, it has been defined more often by its critics—traditionalists who argue that only certain kinds of speech, behavior, or ideas are acceptable to politically correct

"This is the way curricular reform is playing out in a lot of places, and it's not getting attention because it's peaceful."

scholars. Like many campuses, Arizona has had its share of tensions between scholars on both sides.

Mr. Canfield thinks the national backlash against political correctness is the result of extreme statements made by academics on the left. But in his opinion, rather than junk curricular evolution along with extremist views that portray Western culture as oppressive and racist, "such statements simply need to be exposed as extreme."

He adds: "To understand Western culture you have to critique it. So what we're trying to do is subject canonical texts to scrutiny."

Enrollment in the new courses,

the first of which was offered last fall, is voluntary. The university also offers several other Western civilization sequences that specialize in the humanities, the fine arts, history, literature, or philosophy. While those courses are more traditional than the new sequence, many of them examine a broader range of texts than before, says Jerrold E. Hogle, associate dean of the Faculty of Humanities and an English professor who has been a guest lecturer in the new course on evil.

In academic 1990-91, undergraduates in the College of Arts and Sciences could satisfy a Western civilization requirement by taking three courses in any sequence. They also had to take a course in non-Western culture. Those requirements have since been modified, a subtle but certain reflection of changes in the college's view of Western civilization: Starting in the fall, students will be required to satisfy a renamed "cultures and traditions" requirement by taking two courses that focus heavily on traditional Western culture, and one course that examines other cultures.

"What we're trying to show is that the idea of Western as 'us' and non-Western as 'them' is much harder to think of," Mr. Hogle says.

"But on the other hand, we haven't turned the world upside down. We're not saying, Throw all the white men out."

Mr. Hyde's 'Two-Ness'

That is apparent during a lecture for the course on evil, which was offered in the spring semester.

In a large classroom cramped with dozens of chairs bolted to the floor, Mr. Hogle is leading the class through Robert Louis Stevenson's

A Different Perspective on Western Civilization

Description: "Critical Concepts in Western Culture" is a series of humanities courses at the University of Arizona that have been developed around a single theme, such as war or evil or love. The courses examine Western culture from different cultural perspectives and in juxtaposition to popular and non-Western culture. Students in the College of Arts and Sciences can take the courses to satisfy a humanities requirement.

Format: The courses can be taken as a sequence or alone. Students attend two lectures and one small discussion meeting a week.

Requirements and Grading: During each course students are assigned 12 take-home quizzes, which together count for 60 per cent of their grade. Often the quizzes are extensions of classroom discussion. A final examination counts for 30 per cent of

the grade, and the remaining 10 per cent is based on the quality of a student's participation in discussions.

Reading List: Along with assigned readings, students may be asked to watch several films, listen to musical selections, or view slides of works of art.

For example, in the "The Problem of Evil" course, students read selections from Greek mythology, the Bible, Pope, Voltaire, Rousseau, Nietzsche, and Kiowan Indian mythology. Other texts include Goethe's *Faust*, Shelley's *Frankenstein*, Stevenson's *The Strange Case of Dr. Jekyll and Mr. Hyde*, Camus's *The Plague*, Bulgakov's *The Master and Margarita*, and Faulkner's *Sanctuary*.

Students also view slides of works by German Expressionist artists and watch the films *Metropolis*, *Looking for Mr. Goodbar*, and *Do the Right Thing*. They also watch a film of a Yaqui Indian ceremony.

Dr. Jekyll and Mr. Hyde. He starts with a discussion of the cultural circumstances reflected in the novel—particularly notions of social class, which, he notes, appear throughout Victorian literature. He ends with a discussion of the concept of the "two-ness" of Stevenson's character.

When *Dr. Jekyll and Mr. Hyde* was published in 1886, British society was changing rapidly as people raised their class status by moving from the country to the city, Mr. Hogle tells the class. He cites as a reflection of the shifting class activity a passage that describes a

neighborhood where a prosperous row of shops co-exists with an "out and out Skid Row."

Next comes a discussion of the author and the forces that shaped his life and, presumably, the novel at hand: the Stevenson family's own class transformation in Scotland, the Calvinist influences in the author's life, and the "double nature" of his life as a middle-class man with a dark side.

Stevenson—who was a boy at the time Darwin published his theories on evolution—was also intrigued by the notion of whether de-evolution was possible, an idea perhaps embodied in his evil Mr. Hyde, Mr. Hogle suggests. Finally, the author, who suffered from lung disease, was probably influenced by medical advances that led to inoculations that could make sick people well and thus transform them.

Cultural-Studies Approach

Mr. Hogle explains afterward that he used a cultural-studies approach in the classroom, combining several different literary-theory techniques (including a Marxist reading and a traditional historical reading of the text). Although scholars trained in Marxist theory pay special attention to class relationships, one need not be a Marxist scholar to examine such issues, he says. He hopes that the cultural-studies movement—still considered suspect by some academics—will lead more scholars and students to look through a variety of lenses to examine the way social assumptions are formed.

That, he believes, is how Western culture will be studied in the future. And Yes, he says, it will be studied.

"This is not a course that strives to be politically correct," he adds. "But it is concerned about some of the issues the debate has generated, like cross-cultural understanding."

"This is the way curricular reform is playing out in a lot of places, and it's not getting attention because it's peaceful."

Record Number of Doctorates Awarded; Over 25% Go to Foreign Students

Continued From Page A1 bers of U.S. minority groups have increased their share of doctorates since 1980. The number of degrees earned by blacks fell by 19.8 per cent over the decade. The number of degrees was up 69.4 per cent for Hispanics, up 34.7 per cent for Asians, and up 24 per cent for American Indians. The number of degrees earned by whites was down 1.6 per cent.

■ Women steadily increased their share of doctorates during the decade. They earned 36.3 per cent of all doctorates in 1990, up from 30.3 per cent in 1980. They earned slightly more than half of the doctorates awarded in fields other than science and engineering. And they earned 27.7 per cent of science and engineering doctorates, up from 22.2 per cent in 1980.

■ The proportion of doctorates earned by U.S. citizens saw a steady decline during the decade. Of the recipients whose citizenship was known, 72 per cent were Americans in 1990, down from 83.6 per cent in 1980. Temporary residents—particularly those from China and South Korea—accounted for much of the increase in doctorates earned by non-U.S. citizens.

■ Of those who earned doctorates in mathematics and engineering, non-U.S. citizens represented

Doctorate Recipients by Citizenship and Sex

	1980	1990
U.S. citizens	72.0%	83.6%
Permanent residents	4.9	4.3
Temporary residents	23.1	12.1
Men	63.7%	69.7%
Women	36.3	30.3
Total	36,027	31,020

Total includes doctorates of unknown citizenship status.

SOURCE: NATIONAL SCIENCE FOUNDATION

more than half of the recipients whose citizenship was known. (The 1990 data also include 2,439 doctorate recipients of unknown citizenship status.)

■ The number of U.S. citizens earning science and engineering doctorates rose slightly during the decade, to 13,618 in 1990 from 13,410 in 1980. The number for other fields fell, but no breakdown was available.

Significant Data on Scientists

Alan Fechter, executive director of the research council's Office of Scientific and Engineering Personnel, said he thought the data on Americans with science and engi-

neering doctorates was especially significant.

"To me the interesting thing is not what's happening to foreigners, but what's happening with Americans," he said. "It looks like the downward trend in Americans' getting science and engineering doctorates may be over."

Increase in Engineering

The number fell in the mid-1980's, but rose slightly in each of the last three years, he noted. The increase was especially noticeable in engineering: 1,927 Americans earned doctorates in 1990, compared with 1,255 in 1980. The number of women earning engineering doctorates, while small, also rose—to 242, up from 64.

Robert K. Weatherall, director of the office of career services at the Massachusetts Institute of Technology, suggested that one reason the demand for engineering doctorates had increased was that private companies had become more willing than in the past to pay higher salaries to job candidates with advanced degrees. There was a period when the premium paid to a job candidate with an advanced degree fell, he said.

As in past years, the latest data on minority doctoral-degree recipients are likely to disappoint institutions seeking to hire more minority

professors. Although there are indications that the graduate enrollment of minority students has started to rise, the number of doctorates awarded to members of American minority groups has not shown a significant increase in the last few years.

In addition, minority recipients were—as they have been in the past—very rare in certain fields. For example, only one American Indian was known to have received a doctorate in mathematics in 1990, and only one black American was known to have received one in computer science.

Breakdowns by Field and Race

The science foundation's report, "Selected Data on Science and Engineering Doctorate Awards: 1990," includes breakdowns of data by broad field, citizenship status, and race and ethnicity.

It also provides data on the total number of doctorates awarded. Copies are available free from the Division of Science Resources Studies, Room 609-L, National Science Foundation, 1800 G Street, N.W., Washington 20550; (202) 634-4284.

Data for specific fields other than those in engineering and the sciences will be available in the research council's forthcoming report.